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STATE OF MONTANA

**BULLETIN**

OF THE

**Department of Public Health**

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Vol. 6

June 15, 1913

No. 3

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**MONTANA STATE BOARD OF HEALTH**

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W. F. COGSWELL, M. D., Secretary.

EMIL STARZ, Ph. D.

State Bacteriologist,

ALLAN TUFFORD,

Consulting Architect.

**HELENA, MONTANA.**

Published Monthly at Helena, by the State Board of Health.

"The science of disease prevention, if properly applied, can add fifteen years to the present average length of human life."—Prof. Irving Fisher, Yale.

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This Bulletin will be mailed monthly to any person in Montana upon request mailed to the Secretary of the State Board of Health at Helena.



The attention of the doctors throughout the state is again called to the fact that at the last meeting of the legislature tuberculosis, whooping cough and anterior poliomyelitis were placed on the list of "communicable diseases."

To report cases of "communicable diseases" is obligatory upon physicians attending such cases and failure to report such cases is punishable by fine. During the month of April there were only 6 cases of tuberculosis reported and the number of deaths from tuberculosis during the same month was 31, also during the month of May there were 6 cases reported with 31 deaths. We feel that **failure to report these cases**, is due to carelessness on the part of physicians, probably ignorance of the law in some cases, but it is carelessness that cannot be allowed to continue.

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Mr. C. W. Tenney, Rural School Inspector with the Department of Education, has been appointed by the office of the State Board of Health as sanitary inspector for rural school districts. This will give Mr. Tenney authority to remedy insanitary conditions in the school, which may come to his notice while inspecting the schools in the capacity of Rural School Inspector.

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The attention of the health officers and railroad officials is called to the following rules and regulations of the State Board of Health, relative to transportation of infectious diseases on common carriers.

Reg. 1.—No person having reason to believe that he or she is suffering from cholera, diphtheria (or membranous croup), plague, scarlet fever, smallpox, yellow fever, chicken-pox or measles, shall enter, nor shall any person permit anyone under his or her care so infected, to enter any public conveyance or common carrier.

Reg. 2.—All conductors of railroad trains and street cars and captains of boats, if they have any reason to suspect any passenger to be suffering from any disease enumerated in Regulation 1, shall immediately notify the nearest health officer or company physician (when the health officer is not available), located on their route, by the most direct and speedy means possible, of their belief, and such health officer or company physician must meet such railroad train at the station, or such street car or boat at the nearest possible point, and make a thorough examination of such person and determine whether or not such disease exists.

Reg. 3.—When the health officer or physician notified as provided in Regulation 2, shall find any person in a car, boat or other public conveyance to be afflicted with smallpox, diphtheria, scarlet fever, or other quarantinable disease, the car, boat or other public conveyance shall be turned over to the health officer or physician, who shall treat such conveyance as infected premises. When in the judgment of the health officer or physician the case is in such early stage of development that other passengers are not affected, the patient shall be removed from the conveyance and it shall be allowed to proceed. If the health officer or physician shall deem that the exposure is such as to have infected other passengers, he shall call upon the person in charge to remove infected from service at the first place where suitable accommodations can be secured and such health officer or physician shall notify the health officer in whose jurisdiction the infected conveyance is left.

In these cases it is the county health officer who has jurisdiction, and he is the one who should be notified of such cases, rather than the local health officer. This statement is made on account of the fact that in the past a dispute has arisen on several occasions between local and county health officers as to who shall assume charge.

### **CONTAMINATED VEGETABLES.**

#### **The Use of Night Soil in the Vegetable Garden As a Possible Disseminator of Disease.**

(By J. D. Long, Surgeon, United States Public Health Service).

It is customary in investigations to discover the causes operative in the production of outbreaks of typhoid fever, to inquire, among other things, as to whether persons who have been attacked by the disease have used fresh or uncooked vegetables as part of their diet during the two or three weeks prior to the onset of the disease.

The reason for making such inquiry is that in some localities vegetable gardens have been handled in such an insanitary manner that they have become a danger to the community, not only for the reason that typhoid fever can be spread through the agency of vegetables, but because other serious diseases, such as amebic dysentery and bacillary dysentery, may be transmitted in the same manner.

It has been the custom in the Orient, for no one knows how many years, to use night soil as a fertilizer in vegetable gardens. In fact, the practice is so common that there is a

regularly established traffic in this commodity, and owners and operators of vegetable gardens, in addition to carefully saving the excrement of themselves, their families, and laborers, make periodical trips to the nearest market for the purpose of purchasing such additional material as may be needed. An understanding of this custom will make plain the reason why disease, due to practices of this kind, is common in oriental countries.

The method of using the material varies in different localities. The practice is first to mix a certain amount with the soil at or near the time of planting the seed; then at later periods, when the vegetables are growing, to sprinkle a thin solution of night soil from a sprinkling can over the growing vegetables. In certain portions of the Orient it is a common thing to see a laborer walking between rows of young vegetables with a bamboo pole over his shoulder from each end of which there hangs a sprinkling can. The streams from these cans are carefully directed onto the tops of the young vegetables, and two rows can thus be treated at one time.

In certain portions of the United States it is not uncommon to use sewage as it issues from the sewerage systems of cities or towns for irrigation purposes, either by diverting it into a channel which leads through the garden, or by dipping it from polluted streams, vaults or vats, and applying it. In several communities, owners of large vegetable gardens collect night soil, and furnish, clean, and change the pails or receptacles, free of charge to the householder. In these instances the matter collected is usually mixed with the earth of the garden.

It has been found that vegetables grown in soil infected with the germ of typhoid fever had the germs of the disease upon the leaves and stems 31 days after the soil was infected, and the same germ was found in the ground itself 35 days after it was infected. Rainfall and sunlight did not kill or remove the germs.

### IT CAN BE DONE.

Somebody said it couldn't be done,  
But he, with a chuckle, replied,  
That maybe it couldn't, but he wouldn't be one  
Who would say so till he'd tried.  
So he buckled right in with the trace of a grin  
On his face. If he worried, he hid it.  
He started to sing as he tackled the thing  
That couldn't be done, and he did it.

Somebody scoffed: "O, you'll never do that—  
At least, no one ever has done it."  
But he took off his coat and he took off his hat,  
And the first thing we knew, he'd begun it,  
With the lift of his chin and the bit of a grin,  
Without any doubting or quiddit.  
He started to sing as he tackled the thing  
That couldn't be done, and he did it.

There are thousands to tell you it cannot be done,  
There are thousands to prophesy failure;  
There are thousands to point out to you one by one  
The dangers that wait to assail you;  
But just buckle in with the bit of grin,  
Then take off your coat and go to it.  
Just start in to sing as you tackle the thing  
That "cannot be done," and you'll do it.

—Author Unknown.

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### ENTERPRISING CORONER.

Turist—Dr. Slade, the coroner, seems to be a very enterprising man.

Colonel Handy Polk—Enterprising! You bet! Tell you what he done last summer when the circus was here. One of the curiosities in the side show was an Egyptian mummy. Slade seized the mummy, rounded up a jury, brought in a verdict "Dead from unknown causes," and charged the county his regular fee with compound interest from the time of Moses.—Truth.



**BIRTHS (EXCLUSIVE OF STILLBIRTHS) REPORTED TO THE STATE  
BOARD OF HEALTH FOR THE MONTH OF MAY, 1913, AND  
COMPARATIVE BIRTH AND DEATH RECORD IN THE STATE.**

|                                  | Males. | Females. | Totals. | Deaths. | Excess of Births. | Excess of Deaths. |
|----------------------------------|--------|----------|---------|---------|-------------------|-------------------|
| Beaverhead .....                 | 4      | 3        | 7       | 5       | 2                 | ..                |
| Broadwater .....                 | 2      | 2        | 4       | 5       | ..                | 1                 |
| Carbon .....                     | 12     | 12       | 24      | 7       | 17                | ..                |
| Cascade (Excl. of) .....         | 17     | 10       | 27      | 12      | 15                | ..                |
| Great Falls .....                | 14     | 22       | 36      | 14      | 22                | ..                |
| Chouteau .....                   | 8      | 4        | 12      | 5       | 7                 | ..                |
| Custer .....                     | 10     | 9        | 19      | 6       | 13                | ..                |
| Dawson .....                     | 18     | 11       | 29      | 19      | 10                | ..                |
| Deer Lodge (Excl. of) .....      | ..     | ..       | ..      | 12      | ..                | 12                |
| Anaconda .....                   | 19     | 14       | 33      | 9       | 24                | ..                |
| Fergus .....                     | 13     | 9        | 22      | 21      | 1                 | ..                |
| Flathead (Excl. of) .....        | 13     | 12       | 25      | 16      | 9                 | ..                |
| Kalispell .....                  | 7      | 6        | 13      | 7       | 6                 | ..                |
| Gallatin (Excl. of) .....        | 8      | 5        | 13      | 11      | 2                 | ..                |
| Bozeman .....                    | 10     | 4        | 14      | 4       | 10                | ..                |
| Granite .....                    | 3      | 3        | 6       | 3       | 3                 | ..                |
| Jefferson .....                  | 7      | 6        | 13      | 3       | 10                | ..                |
| Lewis and Clark (Excl. of) ..... | 1      | 2        | 3       | 8       | ..                | 5                 |
| Helena .....                     | 2      | 7        | 9       | 15      | ..                | 6                 |
| Lincoln .....                    | 1      | 7        | 8       | 7       | 1                 | ..                |
| Madison .....                    | 9      | 6        | 15      | 10      | 5                 | ..                |
| Meagher .....                    | 7      | 2        | 9       | 3       | 6                 | ..                |
| Missoula (Excl. of) .....        | 6      | 5        | 11      | 3       | 8                 | ..                |
| Missoula City .....              | 9      | 9        | 18      | 13      | 5                 | ..                |
| Musselshell .....                | 7      | 11       | 18      | 2       | 16                | ..                |
| Park (Excl. of) .....            | 3      | 1        | 4       | 7       | ..                | 3                 |
| Livingston .....                 | 11     | 5        | 16      | 9       | 7                 | ..                |
| Powell .....                     | 4      | 2        | 6       | 6       | ..                | ..                |
| Ravalli .....                    | 7      | 5        | 12      | 6       | 6                 | ..                |
| Rosebud .....                    | 3      | 2        | 5       | 1       | 4                 | ..                |
| Sanders .....                    | 4      | 4        | 8       | 5       | 3                 | ..                |
| Silver Bow (Excl. of) .....      | 13     | 10       | 23      | 24      | ..                | 1                 |
| Butte .....                      | 37     | 39       | 76      | 73      | 3                 | ..                |
| Sweet Grass .....                | 2      | 9        | 11      | 4       | 7                 | ..                |
| Teton .....                      | 10     | 9        | 19      | 4       | 15                | ..                |
| Valley .....                     | 11     | 8        | 19      | 3       | 16                | ..                |
| Yellowstone (Excl. of) .....     | 8      | 8        | 16      | 9       | 7                 | ..                |
| Billings .....                   | 13     | 5        | 18      | 11      | 7                 | ..                |
| Blaine .....                     | 1      | 3        | 4       | 1       | 3                 | ..                |
| Big Horn .....                   | 1      | ..       | 1       | ..      | 1                 | ..                |
| Hill .....                       | 5      | 8        | 13      | 12      | 1                 | ..                |
| Sheridan .....                   | 3      | 7        | 10      | 3       | 7                 | ..                |
| Stillwater .....                 | 5      | 3        | 8       | 4       | 4                 | ..                |
| Totals .....                     | 348    | 309      | 657     | 302     | 283               |                   |

**DEATHS (\*EXCLUSIVE OF STILLBIRTHS) REPORTED TO THE STATE  
BOARD OF HEALTH FOR THE MONTH OF MAY, 1913,  
ARRANGED ACCORDING TO COUNTIES AND CITIES.**

|                                  | Spotted Fever | Small Pox | Tuberculosis | Diphtheria | Scarlet Fever | Measles | Typhoid Fever | Whooping Cough | Pneumonia | Nephritis | Organic Heart Disease | Malignant Tumors | Acute Intestinal Diseases | Violence | Suicide | Alcoholism | All Other Causes | Totals |
|----------------------------------|---------------|-----------|--------------|------------|---------------|---------|---------------|----------------|-----------|-----------|-----------------------|------------------|---------------------------|----------|---------|------------|------------------|--------|
| Beaverhead .....                 |               |           | 1            |            |               |         |               |                | 2         |           |                       |                  |                           | 1        |         |            | 2                | 5      |
| Broadwater .....                 |               |           |              |            |               |         |               |                |           | 1         |                       |                  |                           | 1        |         |            | 2                | 5      |
| Carbon .....                     |               |           |              |            |               |         |               |                | 2         |           | 1                     |                  |                           | 1        |         |            | 2                | 7      |
| Cascade (Excl. of) .....         |               |           |              |            |               |         |               |                | 2         |           |                       |                  |                           |          |         | 1          | 5                | 12     |
| Great Falls .....                |               |           | 1            |            |               |         |               |                | 3         |           | 1                     |                  |                           | 1        |         |            | 4                | 14     |
| Chouteau .....                   |               |           |              |            |               |         | 1             |                |           |           |                       |                  |                           |          |         |            | 1                | 5      |
| Custer .....                     |               |           |              |            |               |         |               |                | 1         |           | 1                     |                  |                           | 1        |         |            | 3                | 6      |
| Dawson .....                     |               |           | 2            | 1          |               |         |               |                | 3         | 1         | 1                     |                  |                           | 1        | 2       | 1          | 7                | 19     |
| Deer Lodge (Excl. of) .....      |               |           |              | 1          |               |         |               |                |           |           |                       |                  |                           |          |         |            | 12               | 12     |
| Anaconda .....                   |               |           |              |            |               |         |               |                | 1         | 1         | 1                     |                  |                           |          |         |            | 6                | 9      |
| Fergus .....                     |               |           | 1            |            | 5             |         | 1             | 1              | 2         | 2         | 3                     |                  | 1                         | 1        |         |            | 4                | 21     |
| Flathead (Excl. of) .....        |               |           |              |            |               |         |               | 1              | 1         | 2         | 1                     | 1                | 3                         | 1        | 1       |            | 5                | 16     |
| Kalispell .....                  |               |           |              |            |               |         |               |                | 1         |           | 1                     |                  | 1                         | 1        |         |            | 4                | 7      |
| Gallatin (Excl. of) .....        |               |           | 2            |            |               |         |               |                | 4         | 1         |                       | 2                |                           |          |         |            | 3                | 11     |
| Bozeman .....                    |               |           |              |            |               |         |               |                | 1         |           |                       |                  |                           |          |         |            | 2                | 4      |
| Granite .....                    |               |           |              |            |               |         |               |                |           |           |                       |                  |                           | 1        |         |            | 3                | 3      |
| Jefferson .....                  |               |           |              |            |               |         |               |                |           |           | 1                     |                  |                           |          |         |            | 2                | 3      |
| Lewis and Clark (Excl. of) ..... |               |           |              |            |               |         |               |                | 2         | 1         |                       |                  |                           | 1        |         |            | 4                | 8      |
| Helena .....                     |               |           |              |            | 1             |         | 1             |                |           |           | 3                     |                  |                           | 2        | 1       | 1          | 8                | 15     |
| Lincoln .....                    |               |           | 1            |            |               |         | 1             |                |           |           | 1                     | 1                |                           |          |         |            | 1                | 7      |
| Madison .....                    |               |           | 1            |            |               |         |               |                | 3         | 1         | 1                     | 1                |                           |          |         |            | 3                | 10     |
| Meagher .....                    |               |           |              |            |               |         |               |                |           |           |                       |                  |                           | 1        |         |            | 2                | 3      |
| Missoula (Excl. of) .....        |               |           | 1            |            |               |         |               |                |           |           | 1                     |                  | 1                         |          |         |            | 1                | 3      |
| Missoula City .....              | 1             |           | 1            |            |               |         |               |                |           | 1         | 2                     | 2                |                           | 2        |         | 1          | 3                | 13     |
| Musselshell .....                |               |           | 1            |            |               |         |               |                |           |           |                       |                  |                           | 1        |         |            |                  | 2      |
| Park (Excl. of) .....            |               |           |              |            |               |         |               |                |           |           | 1                     |                  | 1                         | 2        |         |            | 3                | 7      |
| Livingston .....                 |               |           | 1            |            |               |         |               | 1              | 2         |           |                       |                  |                           | 1        |         |            | 3                | 9      |
| Powell .....                     |               |           |              |            |               |         |               |                |           | 1         |                       |                  | 1                         |          |         |            | 3                | 6      |
| Ravalli .....                    | 1             |           |              |            |               |         |               |                |           | 1         |                       |                  | 1                         |          |         |            | 3                | 6      |
| Rosebud .....                    |               |           |              |            |               |         |               |                |           |           |                       |                  | 1                         |          |         |            |                  | 1      |
| Sanders .....                    |               |           |              |            |               |         |               |                |           | 1         |                       | 1                |                           | 2        |         |            | 1                | 5      |
| Silver Bow (Excl. of) .....      |               |           | 4            |            |               |         |               |                | 6         | 3         | 1                     | 1                | 5                         | 1        | 1       |            | 2                | 24     |
| Butte .....                      |               |           | 8            |            | 3             |         | 1             | 2              | 1         | 11        | 6                     | 10               | 1                         | 1        | 6       | 1          | 22               | 73     |
| Sweet Grass .....                |               |           |              |            |               |         |               |                |           |           |                       |                  |                           |          |         |            | 4                | 4      |
| Teton .....                      |               |           |              |            |               |         |               |                |           |           | 2                     |                  |                           | 1        |         |            | 1                | 4      |
| Valley .....                     |               |           |              |            |               |         |               |                |           |           |                       |                  |                           | 3        |         |            |                  | 3      |
| Yellowstone (Excl. of) .....     |               |           | 1            |            |               |         |               |                | 2         |           | 1                     |                  |                           | 1        |         |            | 4                | 9      |
| Billings .....                   |               |           | 2            |            |               |         |               |                | 1         | 1         |                       |                  | 2                         |          |         | 1          | 4                | 11     |
| Blaine .....                     |               |           |              |            |               |         |               |                |           |           |                       |                  |                           | 1        |         |            |                  | 1      |
| Big Horn .....                   |               |           |              |            |               |         |               |                |           |           |                       |                  |                           |          |         |            |                  |        |
| Hill .....                       |               |           | 1            |            |               |         | 1             |                | 3         |           | 2                     |                  |                           |          | 1       | 1          | 3                | 12     |
| Sheridan .....                   |               |           | 1            |            |               |         |               |                |           |           |                       |                  |                           | 2        |         |            |                  | 3      |
| Stillwater .....                 |               |           | 1            |            |               |         |               |                |           |           | 1                     |                  |                           |          |         | 1          | 1                | 4      |
| Totals .....                     | 2             | 31        | 1            | 13         |               | 3       | 6             | 3              | 52        | 22        | 38                    | 17               | 10                        | 46       | 8       | 9          | 141              | 302    |

\*Stillbirths, 14.

|                                               |         |
|-----------------------------------------------|---------|
| Estimated Population .....                    | 375,000 |
| Monthly death rate per 1,000 population ..... | .800    |
| Annual death rate per 1,000 population .....  | 9.60    |

COMMUNICABLE DISEASES REPORTED TO THE  
STATE BOARD OF HEALTH FOR THE  
MONTH OF MAY, 1913.

SMALLPOX—Beaverhead 1; Blaine, 2; Cascade (Excl. of Great Falls), 1; Great Falls, 4; Custer, 1; Dawson, 1; Fergus, 12; Flathead (Excl. of Kalispell), 2; Hill, 1; Lewis and Clark, (Excl. of Helena), 1; Lincoln, 2; Missoula City, 2; Musselshell, 2; Rosebud, 2; Sheridan, 1; Sweet Grass, 5; Silver Bow, (Excl. of Butte), 2; Teton, 1; Billings, 2; total, 48; total last month, 89.

DIPHTHERIA—Fergus, 1; Park (Excl. of Livingston), 1; Livingston, 1; Silver Bow, (Excl. of Butte), 1; total, 4; total last month, 15.

SCARLET FEVER—Blaine, 7; Cascade, (Excl. of Great Falls), 16; Great Falls, 10; Carbon, 5; Chouteau, 1; Custer, 9; Dawson, 7; Fergus, 8; Bozeman, 5; Jefferson, 1; Lewis and Clark (Excl. of Helena), 10; Helena, 6; Madison, 16; Meagher, 1; Park (Excl. of Livingston), 1; Livingston, 6; Powell, 1; Ravalli, 2; Sweet Grass, 2; Silver Bow (Excl. of Butte), 10; Butte, 30; Valley, 1; total, 155; total last month, 158.

TYPHOID FEVER—Blaine, 1; Cascade (Excl. of Great Falls), 1; Carbon, 2; Dawson, 1; Fergus, 6; Gallatin, 1; Hill, 1; Livingston, 1; Sweet Grass, 1; Yellowstone (Excl. of Billings), 2; Billings, 3; total, 21; total last month 20.

MEASLES—Blaine, 47; Big Horn, 2; Cascade (Excl. of Great Falls), 1; Great Falls, 8; Carbon, 8; Custer, 13; Dawson, 27; Deer Lodge (Excl. of Anaconda), 1; Anaconda, 21; Fergus, 8; Flathead (Excl. of Kalispell), 1; Kalispell, 6; Gallatin (Excl. of Bozeman), 3; Bozeman, 1; Hill, 24; Helena, 5; Madison, 11; Park (Excl. of Livingston), 4; Livingston, 103; Powell, 1; Rosebud, 10; Sheridan, 13; Silver Bow (Excl. of Butte), 32; Butte, 28; Valley, 3; Yellowstone, (Excl. of Billings), 3; Billings, 16; total, 400; total last month, 408.

WHOOPIING COUGH—Carbon 25; Powell, 2; Sweet Grass, 21; Teton, 1; total, 49; total last month, 3.

TUBERCULOSIS—Great Falls, 1; Carbon, 1; Dawson, 1; Hill, 1; Missoula City, 1; Teton, 1; total, 6; total last month 6.

C. S. MENINGITIS—Fergus, 1; Hill, 1; total, 2; total last month, 3.



### DIVISION OF FOODS AND DRUGS.

Dr. W. F. Cogswell, Secretary State Board of Health,  
Food and Drug Commissioner.

F. J. O'Donnell, Inspector.

### LABORATORY STAFF.

W. M. Cobleigh, Chemist.

C. E. Mollet, Director, Drug Analysis.

D. L. Weatherhead, Analyst.

D. B. Swingle, Bacteriologist.

Carl Gottschalck, Assistant in Chemistry.

Nina Armstrong, Clerk and Stenographer.

### LABORATORY REPORT.

Foods, Drugs and Water, Analyzed During the Month  
of May.

### SUMMARY.

| Classification.  | Number<br>Legal..... | Number<br>Illegal..... | Total..... |
|------------------|----------------------|------------------------|------------|
| Milk .....       | 21                   | 9                      | 30         |
| Cream .....      | 1                    | ..                     | 1          |
| Butter .....     | 1                    | 5                      | 6          |
| Unofficial ..... | ..                   | ..                     | 23         |
| Water .....      | ..                   | ..                     | 43         |
| Total .....      |                      |                        | 103        |

### ICE CREAM, MILK AND CREAM—STANDARD OR ABOVE.

#### ICE CREAM.

| Lab.<br>No. | Date.   | Obtained from       | Town.         | Total | Solids<br>Not Fat | Fat   |
|-------------|---------|---------------------|---------------|-------|-------------------|-------|
| 1908        | 5-25-13 | J. R. Cochran & Co. | Bozeman ..... |       |                   | 18.5% |
| 1909        | 5-24-13 | J. R. Cochran & Co. | Bozeman ..... |       |                   | 16.5  |
| 1910        | 5-24-13 | Nick Karras .....   | Bozeman ..... |       |                   | 17.5  |
| 1911        | 5-24-13 | Nick Karras .....   | Bozeman ..... |       |                   | 19.3  |

**MILK.**

|      |         |                                   |                    |        |       |       |
|------|---------|-----------------------------------|--------------------|--------|-------|-------|
| 1873 | 5-22-13 | C. H. Shaver .....                | Shelby .....       | 13.92% | 9.32% | 4.60% |
| 1874 | 5-22-13 | Sarah E. Hughes ..                | Shelby .....       | 13.23  | 9.03  | 4.20  |
| 1875 | 5-22-13 | Mrs. F. A. Sullivan..             | Shelby .....       | 13.79  | 9.19  | 4.60  |
| 1876 | 5-22-13 | Lark Donald .....                 | Shelby .....       | 13.30  | 9.40  | 3.90  |
| 1877 | 5-22-13 | Mrs. J. Wolf .....                | Shelby .....       | 14.14  | 9.44  | 4.70  |
| 1878 | 5-22-13 | D. F. Mains .....                 | Valier .....       | 12.69  | 8.79  | 3.90  |
| 1879 | 5-22-13 | D. F. Mains .....                 | Valier .....       | 13.18  | 8.98  | 4.20  |
| 1880 | 5-22-13 | D. F. Mains .....                 | Valier .....       | 14.61  | 8.81  | 5.80  |
| 1883 | 5-22-13 | Mrs. J. E. Hein ....              | Conrad .....       | 14.98  | 8.68  | 6.30  |
| 1884 | 5-22-13 | Peter Moran .....                 | Conrad .....       | 12.34  | 8.84  | 3.50  |
| 1897 | 5-23-13 | F. M. Boylan .....                | Bozeman .....      | 12.63  | 8.53  | 4.10  |
| 1898 | 5-23-13 | R. G. Gallup .....                | Bozeman .....      | 12.40  | 8.85  | 3.55  |
| 1900 | 5-23-13 | Carl Bibber .....                 | Bozeman .....      | 13.23  | 9.13  | 4.10  |
| 1901 | 5-23-13 | C. E. Soderstrom....              | Bozeman .....      | 12.57  | 8.57  | 4.00  |
| 1902 | 5-23-13 | J. W. Edwards .....               | Bozeman .....      | 13.58  | 8.73  | 4.85  |
| 1903 | 5-23-13 | Ah Hoy and Charlie<br>Zuong ..... | Bozeman .....      | 11.98  | 8.53  | 3.45  |
| 1905 | 5-23-13 | J. W. Bruce .....                 | Bozeman .....      | 15.15  | 8.95  | 6.20  |
| 1906 | 5-23-13 | Suyuki & O'Hara ...               | Bozeman .....      | 12.67  | 8.97  | 3.70  |
| 1907 | 5-29-13 | F. E. Davis .....                 | Bozeman .....      | 14.17  | 8.67  | 5.50  |
| 1926 | 5-29-13 | Fung Fook .....                   | Columbia Falls ... | 13.47  | 8.57  | 4.90  |
| 1931 | 5-29-13 | Peter Rasmusson ....              | Cut Bank .....     | 15.36  | 8.36  | 7.00  |

**CREAM.**

|      |         |                    |               |  |  |       |
|------|---------|--------------------|---------------|--|--|-------|
| 1899 | 5-23-13 | R. G. Gallup ..... | Bozeman ..... |  |  | 25.5% |
|------|---------|--------------------|---------------|--|--|-------|

**MILK BELOW STANDARD.**

| Lab.No. | Date.   | Obtained from        | Town.              | Remarks.    |
|---------|---------|----------------------|--------------------|-------------|
| 1881    | 5-22-13 | James King .....     | Valier .....       | Low in fat. |
| 1885    | 5-22-13 | J. R. Hartley .....  | Conrad .....       | Low in fat. |
| 1886    | 5-22-13 | Peter Moran .....    | Conrad .....       | Low in fat. |
| 1887    | 5-22-13 | Mrs. J. E. Hein .... | Conrad .....       | Low in fat. |
| 1904    | 5-23-13 | Chin Ah Ban .....    | Bozeman .....      | Low in fat. |
| 1927    | 5-29-13 | Charlie Dean .....   | Columbia Falls ... | Low in fat. |
| 1928    | 5-29-13 | Wm. O'Brian .....    | Cut Bank ....      | Low in fat. |
| 1929    | 5-29-13 | C. Akagi .....       | Cut Bank ....      | Low in fat. |
| 1930    | 5-29-13 | R. Chasse .....      | Cut Bank ....      | Low in fat. |

**BUTTER.**

| Lab.No. | Date.  | Description.                                                                                                                                    | Remarks.                        |
|---------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 1855    | 5-7-13 | Retailer, C. C. Hopkins, Harlowton, Mont. On label: Edgewood Creamery Butter. Sold by the pkg.                                                  | Adulterated; low in butter fat. |
| 1854    | 5-7-13 | Retailer, C. C. Hopkins, Harlowton, Mont. On label: Hetereco. Hettinger Creamery Co., Hettinger, N. D. This pkg. contains between 15 and 17 oz. | Adulterated; low in butter fat. |
| 1853    | 5-7-13 | Retailer, C. C. Hopkins, Harlowton, Mont. On label: Excelsior Brand Butter. This pkg. weighs 16 oz. when made.                                  | Adulterated; low in butter fat. |
| 1852    | 5-7-13 | Retailer, C. C. Hopkins, Harlowton, Mont. On label: Primrose Brand. 16 oz. Made by Broadwater County Creamery Co., Townsend, Mont.              | Complies with standard.         |
| 1851    | 5-7-13 | Retailer, Harlowton Grocery Co., Harlowton, Mont. On label: Blanchard Butter.                                                                   | Adulterated; low in butter fat. |
| 1850    | 5-7-13 | Retailer, Urner Merc. Co., Harlowton, Mont. On label: Yellowstone Creamery Butter, Billings Creamery Co. Sold by the package.                   | Adulterated; low in butter fat. |

**WATER ANALYSES.**  
Parts Per Million.

| Laboratory Number. | Description.                                           | Free Ammonia. | Albumenoid Ammonia. | Nitrogen As |           | Oxygen Consumed. | Chlorine. | B. Coll.        | Date.   |
|--------------------|--------------------------------------------------------|---------------|---------------------|-------------|-----------|------------------|-----------|-----------------|---------|
|                    |                                                        |               |                     | Nitrites.   | Nitrates. |                  |           |                 |         |
| 1773               | Great Falls—City Water .....                           | 0.03          | 0.13                | 0.001       | 0.20      | 2.00             | 4.6       | None in 3 c. c. | 4-17-13 |
| 1774               | Great Falls—City Water .....                           | 0.05          | 0.26                | 0.009       | 0.28      | 3.6              | 8.7       | None in 3 c. c. | 4-17-13 |
| 1848               | Great Falls—City Water .....                           | 0.027         | 0.32                | None        | 0.02      | 4.7              | 6.6       | None in 3 c. c. | 5-2-13  |
| 1849               | Great Falls—City Water .....                           | 0.012         | 0.40                | None        | 0.02      | 4.7              | 6.6       | None in 3 c. c. | 5-2-13  |
| 1869               | Great Falls—City Water .....                           | 0.02          | 0.146               | None        | Trace     | 4.25             | 5.09      | None in 3 c. c. | 5-22-13 |
| 1870               | Great Falls—City Water .....                           |               |                     |             |           |                  |           | None in 3 c. c. | 5-22-13 |
| 1871               | Great Falls—City Water .....                           |               |                     |             |           |                  |           | None in 3 c. c. | 5-22-13 |
| 1872               | Great Falls—City Water .....                           | 0.02          | 0.114               | None        | Trace     | 3.85             | 4.8       | None in 3 c. c. | 5-22-13 |
| 1841               | Artesian Well, C. M. & St. P. Ry.,<br>Miles City ..... | 0.028         | 0.10                | None        | 0.08      | 1.30             | 4.6       | None in 3 c. c. | 4-30-13 |
| 1845               | Well, C. M. & St. P. Ry., Harlow-<br>ton .....         | 0.008         | 0.068               | None        | 0.0       | 0.3              | 3.05      | None in 3 c. c. | 5-1-13  |
| 1924               | Water Supply, C. M. & St. P. Ry.,<br>Alberton .....    | 0.012         | 0.032               | None        | 0.22      | 1.3              | 0.25      | None in 3 c. c. | 5-29-13 |

**WATER ANALYSES—(Continued.)**  
Parts Per Million.

| Laboratory Number. | Description.                                               | Free Ammonia. | Albumenoid Ammonia. | Nitrogen As |           | Oxygen Consumed. | Chlorine. | B. Coli.       | Date.   |
|--------------------|------------------------------------------------------------|---------------|---------------------|-------------|-----------|------------------|-----------|----------------|---------|
|                    |                                                            |               |                     | Nitrites.   | Nitrates. |                  |           |                |         |
| 1859               | Water Supply, N. P. Ry., Laurel....                        | 0.016         | 0.088               | None        | 0.04      | 2.2              | 11.2      | None in 3 c.c. | 5-7-13  |
| 1932               | Roundup, City Water .....                                  | 0.114         | 0.031               | None        | 0.12      | 0.25             | 12.2      | None in 3 c.c. | 6-3-13  |
| 1770               | Livingston, City Water, Pumping Station .....              | 0.072         | 0.36                | Trace       | 0.10      | 3.87             | 10.7      | None in 3 c.c. | 4-14-13 |
| 1771               | Livingston, City Water, Pumping Station .....              |               |                     |             |           |                  |           | None in 3 c.c. | 4-16-13 |
| 1772               | Yellowstone River, Intake Livingston Water Works .....     | 0.076         | 0.4                 | Trace       | 0.14      | 3.91             | 10.7      | None in 3 c.c. | 4-14-13 |
| 1866               | Rochester Creek, Below Suspected Source of Pollution ..... | 0.016         | 0.104               | None        | Trace     | 1.95             | 9.7       | None in 3 c.c. | 5-19-13 |
| 1867               | Rochester Creek, Below Suspected Source of Pollution ..... | 0.026         | 0.145               | None        | Trace     | 2.3              | 9.7       | None in 3 c.c. | 5-19-13 |
| 1868               | Rochester Creek, Above Suspected Source of Pollution ..... | 0.028         | 0.123               | None        | 0.16      | 1.1              | 7.1       | None in 3 c.c. | 5-19-13 |
| 1842               | Billings, City Water at Intake .....                       | 0.020         | 0.094               | None        | Trace     | 1.83             | 5.1       | None in 3 c.c. | 4-30-13 |

**WATER ANALYSES—(Continued.)**  
Parts Per Million.

| Laboratory Number. | Description.                                                  | Free Ammonia. | Albumenoid Ammonia. | Nitrogen As |           | Oxygen Consumed. | Chlorine. | B. Coli.       | Date.   |
|--------------------|---------------------------------------------------------------|---------------|---------------------|-------------|-----------|------------------|-----------|----------------|---------|
|                    |                                                               |               |                     | Nitrites.   | Nitrates. |                  |           |                |         |
| 1843               | Billings, City Water at Pumping Station .....                 | 0.008         | 0.084               | Trace       | Trace     | 2.00             | 5.1       | None in 3 c.c. | 4-30-13 |
| 1844               | Billings, City Water at Tap in Town .....                     | 0.021         | 0.089               | None        | Trace     | 1.87             | 5.3       | None in 3 c.c. | 4-30-13 |
| 1935               | Billings, City Water at Intake .....                          | 0.052         | 0.211               | 0.011       | 0.34      | 3.60             | 0.51      |                | 6-3-13  |
| 1936               | Billings, City Water at Pumping Station .....                 | 0.052         | 0.211               | 0.011       | 0.34      | 3.70             | 0.51      |                | 6-3-13  |
| 1925               | Well, Fred Waterman, Hardin .....                             | 0.66          | 0.06                | 0.009       | Trace     | 3.15             | 9.67      |                | 5-27-13 |
| 1846               | Little Chicago Water Supply, at Intake, Untreated Water ..... | 0.024         | 0.166               | None        | Trace     | 3.18             | 4.07      | 1 in 3 c.c.    | 4-30-13 |
| 1847               | Little Chicago Water Supply, at Tap, After Treatment .....    | 0.028         | 0.138               | None        | 0.02      | 3.1              | 4.6       | None in 3 c.c. | 4-30-13 |
| 1862               | Little Chicago Water Supply, at Intake, Untreated Water ..... | 0.016         | 0.18                | None        | None      | 2.5              | 3.6       | None in 3 c.c. | 5-15-13 |
| 1863               | Little Chicago Water Supply, at Tap, After Treatment .....    | 0.016         | 0.20                | None        | None      | 2.6              | 3.6       | None in 3 c.c. | 5-15-13 |



**WATER ANALYSES—(Continued.)**  
Parts Per Million.

| Laboratory Number. | Description.                                              | Free Ammonia. | Albumenoid Ammonia. | Nitrogen As |           | Oxygen Consumed. | Chlorine. | B. Coli.          | Date.   |
|--------------------|-----------------------------------------------------------|---------------|---------------------|-------------|-----------|------------------|-----------|-------------------|---------|
|                    |                                                           |               |                     | Nitrites.   | Nitrates. |                  |           |                   |         |
| 1860               | Laurel Sewage, Effluent From Filter Bed .....             | 0.266         | 0.29                | 0.2         | 0.40      | 3.74             | 64.1      | About 80 per c.c. | 5-7-13  |
| 1861               | Laurel Sewage, Raw Sewage to Filter Bed .....             | 0.168         | 0.291               | 0.2         | 0.4       | 3.00             | 65.2      |                   | 5-7-13  |
| 1864               | Yellowstone River, Intake Gardiner Water Works .....      | 0.06          | 0.094               | 0.001       | 0.04      | 3.5              | 3.6       |                   | 5-16-13 |
| 1865               | Gardiner City Water, at Pumping Station .....             | 0.048         | 0.117               | 0.0005      | 0.04      | 3.05             | 3.6       |                   | 5-7-13  |
| 1888               | Gardiner River at Mouth .....                             | 0.02          | 0.088               | None        | Trace     | 2.55             | 11.2      | None in 3 c.c.    | 5-22-13 |
| 1889               | Yellowstone River, Intake Gardiner City Water Works ..... | 0.05          | 0.116               | 0.0025      | Trace     | 3.15             | 3.6       | None in 3 c.c.    | 5-22-13 |
| 1890               | Gardiner City Water, at Pumping Station .....             | 0.058         | 0.099               | 0.0015      | Trace     | 3.05             | 4.07      | None in 3 c.c.    | 5-22-13 |
| 1891               | Gardiner City Water, at Tap .....                         | 0.04          | 0.111               | 0.0005      | Trace     | 2.95             | 3.8       | None in 3 c.c.    | 5-22-13 |

## **WATER.**

Many problems relating to the purity of various water supplies were referred to the Board of Health laboratory during the month of May. The tabulation above contains the analyses that have recently been made, which for the purpose of interpretation can be classified according to the nature of the problem involved as follows:

### **Water Supplied by Interstate Carriers.**

The following is copied from the Public Health reports for May 16, 1913:

"On January 25, 1913, the Secretary of the Treasury, under authority of an act of Congress approved February 15, 1893, promulgated the following regulations regarding the water and ice furnished to passengers by common carriers in interstate traffic:

#### **Amendment to Interstate Quarantine Regulations.**

"Article 3, General Regulations, is hereby amended by the addition of the following paragraph:

"Paragraph 15. Water provided by common carriers on cars, vessels, or vehicles operated in interstate traffic for the use of passengers shall be furnished under the following conditions:"

(a) Water shall be certified by the state or municipal health authority within whose jurisdiction it is obtained as incapable of conveying disease: Provided, that water in regard to the safety of which a reasonable doubt exists may be used if the same has been treated in such a manner as to render it incapable of conveying disease, and the fact of such treatment is certified by the aforesaid health officer.

(b) Ice used for cooling such water shall be from a source the safety of which is certified by the state or municipal health authority within whose jurisdiction it is obtained, and before the ice is placed in the water it shall be first carefully washed with water of known safety and handled in such manner as to prevent its becoming contaminated by the organisms of infectious or contagious diseases: Provided, that the foregoing shall not apply to ice which does not come in contact with the water which is to be cooled.

(c) Water containers shall be cleansed and thoroughly scalded with live steam at least once in each week that they are in operation.

Many requests have been received from common carriers for instructions as to how the requirements of the regulation can best be fulfilled. Therefore, for the information of those concerned, the following instructions have been drafted:

#### **Instructions Relative to the Certification of the Water and Ice**

##### **Furnished to Passengers in Interstate Traffic.**

"Samples of water and artificial ice from each and every source of supply should be subjected to bacteriological and

chemical examinations at least once in every six months by the proper state or municipal health authority within whose jurisdiction the supply is obtained, or by other person or persons competent to make such examinations and whose results will be accepted by the state or municipal health authority whose duty it is to issue certificates. Each new crop of natural ice should be examined and certified before use.

"The common carrier desiring a certificate of the state or municipal health authority within whose jurisdiction the water or ice is obtained should make application therefor.

"After necessary examinations shall have been made the certificate should be issued on the form which is appended, one copy to be delivered to the common carrier, one copy to be forwarded to the Surgeon General, United States Public Health Service, Washington, D. C.; and one copy to be retained as a matter of record and for future reference.

"Whenever there is an unusual prevalence of typhoid fever, dysentery, infantile diarrhoea, or other water-borne disease in a locality from which common carriers receive water and ice, an additional examination of the water and ice should be made and a supplemental certificate made by the proper certifying authority and forwarded as above."

As soon as the above regulations were published the officials of the Chicago, Milwaukee & St. Paul Railway Company requested analyses of water samples taken from supplies furnished to passenger trains at Miles City, Harlowton, and Alberton. The analyses of these samples are listed in the tabulations under laboratory numbers 1841, 1845 and 1924. It will be observed that in all the samples the bacteriological tests indicate the absence of germs of intestinal types. The chemical analyses show that the waters do not contain abnormal amounts of organic matter in solution and these facts, together with the absence of nitrites and low free ammonias indicate that they are, no doubt, free from dangerous contamination. Proper certification of the above facts have been made to the officials concerned.

### **The Purity of Surface Waters:**

Many of the cities of Montana are supplied with water taken from streams above human habitations and any of the usual sources of contamination. However, several cities find it necessary to use surface waters that have received sewage contamination and organic waste at varying distances above intakes of the pumping plants. Unfortunately, sanitarians have not been able to establish universal standards of purity for surface waters of this kind.

However, the committee on standards of purity for rivers and water-ways of the National Association for Preventing the Pollution of Rivers and Water-ways have made a report containing general statements which are helpful in considering the problem of surface waters in Montana.

"This committee finds that on account of the increasing population of this country it is and always will be physically impossible to maintain waterways in their original and natural condition of purity. A reasonable degree of cleanliness should nevertheless be demanded.

"The discharge of raw sewage into streams and harbors should not be universally prohibited by law. The method of disposal of sewage by dilution is recognized as sound in principal and safe in practice if carried on with proper restrictions.

"For each waterway at any given point there is a limit to the amount of permissible discharge of waste matter, depending upon the use that is made of the river and the character of the territory through which it flows. No universal standard of purity can be wisely established or maintained. When the extent of the pollution is such as to affect the public health in any way by any reasonable use of the river the sanitary aspect of the situation should control and the degree of pollution should be regulated accordingly. The courts must decide what is "reasonable" use. When the extent of the pollution is such as to cause sensible offense to public decency in the course of any reasonable use of the river, this aspect of the situation may properly control. When the extent of pollution is such as to cause material injury to fish or shell-fish industries, or to the ice industry, this element may control. When the extent of the pollution is such as to cause the silting up of the channels of navigable streams, this element may control.

"Even when the demands of public health, offense to decency and interference with navigation are such as to place a limit to the pollution of the stream the economic aspect of the case should be considered in regulating the amount of permissible discharge of waste matter, the fundamental principle being that the results accomplished shall be reasonably commensurate with the cost of preventing of the pollution.

"While no universal standard of purity applicable to all rivers and waterways can be established it is believed to be feasible to establish and maintain appropriate standards of a general nature for waters that fall within certain particular groupings. The committee has this matter under advisement, but it is not prepared to report upon it in detail at this time.

### **Discharge of Sewage.**

"Inasmuch as the safety of the public water supplies is the most important element in the problem of stream pollution at the present time, the following general principles should govern the discharge of the sewage and waste matter into the rivers and waterways:

"Streams from which water supplies are taken without purification should not receive any fecal matter, sewage, sewage effluent or wastes that will render the water a menace to health or otherwise impair its natural quality.



"Streams from which water supplies are taken and used after purification should not receive fecal matter, sewage, sewage effluent or waste matters in such quantities that the contamination of the water at any water-works intake would put an unreasonable burden upon the purification works."

In addition to the statements made by the committees there are other principles generally accepted by sanitarians that have a bearing on Montana conditions. In this connection, the following is quoted from an address by Mr. L. M. Holm, bacteriologist to the Michigan Board of Health.

"Where the public water supply is contaminated the community generally recognizes the danger from typhoid fever and if "typhoid germs" cannot be demonstrated, or at least presumptively declared present, there has been some tendency to ignore the contamination.

"As early as 1893-4 it was observed, independently, by H. F. Mills, of Lawrence, Massachusetts, and Dr. J. J. Reincke, of Hamburg, Germany, that purification of the polluted public water supplies of Lawrence, and of Hamburg, respectively, was producing a notable decline in the general death rate of each of these cities, which was far greater than could be accounted for by reduction of the deaths from typhoid fever alone.

"Mr. Allen Hazen's attention was turned to the subject, and in 1904 he concluded, from an examination of death-rate of several cities that had radically improved polluted water supplies, that "Where one death from typhoid fever has been avoided by the use of better water a certain number of deaths, probably from two to three, from other causes had been avoided." Since that time a great deal of attention has been given to Hazen's conclusion by noted sanitary experts and the early observations have been repeatedly confirmed. In some instances, contaminated surface waters have been replaced by wells; in other instances, filtration plants have been installed, or other improvements have been made. The general results have been the same, indicating that a reduction in the typhoid rate by purification of water supplies causes considerably more than the equivalent reduction in the general mortality rate.

Hazen's theorem is of great importance because it emphasizes the danger from the use of contaminated water. In addition, it minimizes the importance of the actual isolation of typhoid bacilli by showing that the danger from typhoid in polluted water supplies is less than one-third of the total danger, and that typhoid fever is by no means the only disease that may be caused by contaminated water."

The study of the surface waters in Montana is aided materially by the principles given in the committee report above and by the statements quoted from Dr. Holm.

Several of the points brought out apply to the water supplies of Great Falls, Billings, Livingston, Laurel, and many other



Montana cities. Analyses of the water samples from the above named cities are given in the tabulation.

### Gardiner City Water.

In order to secure a better and safer water supply, the Gardiner Water Works Company have recently made some improvements in their plant. The most important change was to extend the intake pipe up the Yellowstone river to a point above the mouth of the Gardiner river. Before this change was made the water supplied to the town was a mixture of Yellowstone and Gardiner river waters but with the intake in its present location the water pumped comes entirely from the Yellowstone river.

The plant has been visited twice by board of health representatives and a number of analyses of water samples have been made. As far as can be determined by laboratory methods the water is now free from dangerous contamination and is a safe domestic water supply.

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### REPORT OF WORK DONE DURING MONTH OF MAY 1913, BY THE BACTERIOLOGIST TO THE MONTANA STATE BOARD OF HEALTH.

May 1, 1913—Exudate of Blister for Bac. Anthracis for Dr. W. G. King, Helena. Found: Negative.

Culture for Diphtheria for Dr. Leard, Livingston, Montana. Found: Streptococci.

May 2, 1913—Pus for Gonococci for Dr. M. Dean, Helena, Montana. Found: Positive.

May 3, 1913—Pus for Pathogenic Cocci for Dr. Jos. Piedalue, Bozeman, Montana. Found: Negative.

Pus for Gonococci for Dr. M. Arnold, Billings, Montana. Found: Negative.

Discharge for Tuberculosis for Dr. B. C. Brook, Helena, Montana. Found: Negative.

May 4, 1913—Diphtheria Culture for Dr. Trinwith, Helena, Montana. Found: Streptococci.

May 5, 1913—Sputum for Tuberculosis for Dr. A. V. Blackstone, Absarokee, Mont. Found: Negative.

Pus for Gonococci for Dr. S. Cooney, Helena, Montana. Found: Gonococci.

Pus for Gonococci for Dr. Trinwith, Helena, Montana. Found: Negative.

May 6, 1913—Blood for Widal Reaction for Dr. J. C. Dunn, Lewistown, Montana. Found: Positive.

Pus for Gonococci for Dr. C. T. Pigot, Roundup, Montana. Found: Positive.

Urinary Sediment for B. T., and Gonococci for Dr. C. A. Spooner, Bainville, Montana. Found: Gonococci.

Blood for Widal Reaction for Dr. G. E. McCann, Salesville, Montana: Found: Positive.

May 8, 1913—Urinary Pus for Gonococci for Dr. M. G.

Danskin, Glendive, Mont. Found: Positive.

Diphtheria Culture for Dr. Trinwith, Helena, Montana. Found: Stahpylococci.

May 9, 1913—Glandular Pus for B. T. for Dr. Clem C. Seerley, Manhattan, Mont. Found: Negative.

May 10, 1913—Blood for Widal Reaction for Dr. E. M. Porter, Fort Benton, Mont. Found: Negative.

May 11, 1913—Pus for Gonococci for Dr. B. C. Brooke, Helena, Montana. Found: Positive.

May 12, 1913—Blood for Widal Reaction for Dr. R. Horsky, Helena, Montana. Found: Negative.

Blood for Widal Reaction for Dr. W. C. Riddell, Helena, Montana. Found: Negative.

May 13, 1913: Sputum for B. T., for Dr. G. Barbour, Helena, Montana. Found: Negative.

May 14, 1913—Sputum for B. T., for Dr. J. B. Beeson, Livingston, Montana. Found: Negative.

Urinary Pus for Pathogenic germs for Dr. B. C. Brooke, Helena, Montana. Found: Streptococci.

May 16, 1913—Pus for B. T., for Dr. B. C. Brooke, Helena, Montana. Found: Negative.

May 17, 1913—Sputum for B. T., and Pneumococci for Dr. C. A. Spooner, Bainville. Found: Pneumococci.

May 19, 1913—Pus for Gonococci for Dr. L. Fligman, Helena, Montana. Found: Negative.

May 20, 1913—Blood for Widal Reaction for Dr. F. E. McCann, Salesville, Mont. Found: Positive.

May 21, 1913—Throat smear for Diphtheria for Dr. Peek, Helena, Montana. Found: Streptococci.

Pus for Gonococci for Dr. B. C. Brooke, Helena, Montana. Found: Positive.

May 22, 1913—Culture for Diphtheria for Dr. Peek, Helena, Montana. Found: Streptococci.

May 23, 1913—Sputum for B. T., for Dr. Spooner, Bainville, Montana. Found: Bacilli Tuberculos and Streptococci.

May 24, 1913—Culture for Diphtheria for Dr. J. G. Thompson, Helena, Montana. Found: Streptococci.

May 26, 1913—Blood for Widal Reaction for Dr. F. E. McCann, Salesville, Montana. Found: Positive.

May 27, 1903—Secretion from sore for Spinochaete Pallida for Dr. S. A. Cooney, Helena, Montana. Found: Negative.

Blood for Widal Reaction for Dr. W. C. Riddell, Helena, Montana. Found: Negative.

May 28, 1913—Blood for Widal Reaction for Dr. Gilham, Townsend, Montana. Found: Positive.

May 31, 1913—Culture for Diphtheria for Dr. Trinwith, Helena, Montana. Found: Staphylococci.

Respectfully submitted,

EMIL STARZ,  
State Bacteriologist.